

ABSTRACT

A method of forming an abrupt junction device with a semiconductor substrate is provided. A gate dielectric is formed on a semiconductor substrate, and a gate is formed on the gate dielectric. A sidewall spacer is formed on the semiconductor substrate adjacent the gate and the gate dielectric. A thickening layer is formed by selective epitaxial growth on the semiconductor substrate adjacent the sidewall spacer. Raised source/drain dopant implanted regions are formed in at least a portion of the thickening layer. Silicide layers are formed in at least a portion of the raised source/drain dopant implanted regions to form source/drain regions, beneath the silicide layers, that are enriched with dopant from the silicide layers. A dielectric layer is deposited over the silicide layers, and contacts are then formed in the dielectric layer to the silicide layers.